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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/747,976	12/27/2000	Takashi Kitae	56937-022	3643

7590 12/31/2003

McDERMOTT, WILL & EMERY
600 13th Street, N.W.
Washington, DC 20005-3096

EXAMINER

PAREKH, NITIN

ART UNIT PAPER NUMBER

2811

DATE MAILED: 12/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/747,976	KITAE ET AL.	
	Examiner	Art Unit	
	Nitin Parekh	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,6-9 and 18-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3,6-8,18-20,22-24,26 and 27 is/are allowed.
- 6) ☒ Claim(s) 9,21 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda (US Pat. 6262785) in view of Zandman et al. (US Pat. 6271060).

Regarding claim 6, Ikeda discloses an electronic part mounting element (3/11 in Fig. 1) comprising:

- an electronic part (3 in Fig. 1)
- an external electrode (5 in Fig. 1) being formed at both ends of the part,
- a coating layer containing a conductive adhesive/resin ingredients being disposed on both ends of the electrodes (not numerically referenced on the surface of 5 in Fig. 1; see lines 29-35)
- an element having a conductive adhesive layer (11 in Fig. 1) being mounted/formed on the electronic part

- a conductive adhesive layer containing conductive filler consisting of metals such as Ag, Pd, and Cu (Col. 2, line 45-57; Col. 3, lines 34-37), and
- the conductive adhesive layer electrically connecting the external electrode to connecting terminals (9 in Fig. 1; Col. 2, line 30- Col. 3, line 35) of the element to be mounted

(Fig. 1; Col. 2, line 30- Col. 3, line 35).

Ikeda fails to teach the conductive adhesive being on the entire surface of the external electrodes.

Ikeda further teaches the coatings of conventional material such as solder or conductive adhesive being applied on the surface of the external electrodes (Col. 12, lines 1-25). Zandman et al. teach using a coating of solder on the entire surface of a metal/external electrode layer (see 216 on 215 in Fig. 6-7B) to improve an electrical connection with connecting terminals (Col. 6, line 54- Col. 7, line 60).

It would have been obvious to a person of ordinary skill in the art at the time invention was made to incorporate the conductive adhesive being on the entire surface of the external electrodes as taught by Ikeda and Zandman et al. so that the integrity of the external connection, bonding strength and reliability can be improved in Ikeda's electronic part mounting element.

3. Claims 21 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda (US Pat. 6262785) and Zandman et al. (US Pat. 6271060) as applied to claim 9 above, and further in view of Kodama et al. (US Pat. 5277723).

Regarding claim 21, Ikeda and Zandman et al. teach substantially the entire claimed structure as applied to claim 9 above, except a surface roughness (Ra) of the external electrode being set in a range of 0.1-10.0 microns.

Kodama et al. teach using electronic parts comprising an internal and external wiring/conductors on inside and side surfaces where the external surface has Ra value of about 1.0 micron or preferably 2.0 microns (Fig. 7c, 5c, 3c, etc.; Col. 7, line 35- Col. 8, line 20; Col. 11, line 35- Col. 12, line 55). Kodama et al further teach achieving the optimum Ra value by controlling the parameters such as firing shrinkage ratio, temperature, pressure and pore size of a substrate material (Col. 11, line 50; Col. 8-12).

It would have been obvious to a person of ordinary skill in the art at the time invention was made to arrive at a surface roughness (Ra) range of the external electrode surface being 0.1-10 microns as taught by Kodama et al. so that the adhesion and bonding strength of the external electrodes can be improved in Zandman et al. and Ikeda's electronic part mounting element.

Regarding claim 25, Ikeda and Zandman et al. teach substantially the entire claimed structure as applied to claim 9 above, except a surface roughness (Ra) of the external electrode being set in a range of 0.1-5.0 microns.

Kodama et al. teach using electronic parts comprising an internal and external wiring/conductors on inside and side surfaces where the external surface has Ra value of about 1.0 micron or preferably 2.0 microns (Fig. 7c, 5c, 3c, etc.; Col. 7, line 35- Col. 8, line 20; Col. 11, line 35- Col. 12, line 55). Kodama et al further teach achieving the optimum Ra value by controlling the parameters such as firing shrinkage ratio, temperature, pressure and pore size of a substrate material (Col. 11, line 50; Col. 8-12).

It would have been obvious to a person of ordinary skill in the art at the time invention was made to arrive at a surface roughness (Ra) range of the external electrode surface being 0.1-5.0 microns as taught by Kodama et al. so that the adhesion and bonding strength of the external electrodes can be improved in Zandman et al. and Ikeda's electronic part mounting element.

Allowable Subject Matter

4. Claims 1, 3, 6-8, 18-20, 22-24, 26 and 27 are allowed.

Response to Arguments

5. Applicant's arguments with respect to claims 9, 21 and 25 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nitin Parekh whose telephone number is 703-305-3410. The examiner can normally be reached on 09:00AM-05:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on 703-305-1690. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

NP

12-16-03



Nitin Parekh

PATENT EXAMINER

TECHNOLOGY CENTER 2800